

with monodichlamydeous unsymmetrical flowers, axile placentæ, an imbricated calyx and corolla, definite stamens, and little or no albumen"—virtually includes Cannabinaceæ, though placed by that author in a different alliance; and by adding to Endlicher's definition of his 'Acera' "carpidia interdum solitaria," the Cannabinaceæ are no longer excluded from them.

XXII.—*A Catalogue of the Zoophytes of South Devon and South Cornwall.* By the Rev. THOMAS HINCKS, B.A.

[Continued from p. 30.]

MEMBRANIPORA, De Blainville (*continued*).

13. *M. discreta*, n. sp. Pl. XII. fig. 1.

Cells oval, distant, distinct, varying in size, and irregularly disposed; the margin cut into about sixteen lobes, supporting as many spines, which bend over the aperture. Ovicell small, globose, minutely frosted.

On shell, from the Brixham trawl-boats.

In this species the cells are remarkably disconnected one from the other. They seem as if lying together in a group rather than united in one structure. They are also not uniform either in size or arrangement. The crenation or lobing of the margin is a very distinctive character. Each spine springs from a little boss on the edge of the cell.

LEPRALIA, Johnston.

1. *L. Brongniartii*, Audouin.

Very abundant from deep water, and also in moderate depths.

2. *L. Landsborovii*, Johnston.

Not common: Start Bay and from the Brixham trawlers, on shell; on *Sertularia abietina*, from 30 fathoms depth, coast of Cornwall.

[Abundant off the Great Orme's Head, North Wales.]

3. *L. reticulata*, Macgillivray.

Very common in deep water: one of the most abundant species on the Cornish *Pinna* from 60 fathoms, forming exquisite patches on the interior surface of the shell; on stone, from 40 fathoms; on *Eschara foliacea*, Devon, &c.

4. *L. auriculata*, Hassall.

Not rare: Torbay; on *Pinna*, 60 fathoms, &c.

[Off Maughold Head, Isle of Man.]

5. *L. concinna*, Busk.

Common: Torbay, on shell, forming large, circular, reddish patches; from 40 fathoms, a few miles south of Polperro, on stone, &c.

Mr. Busk gives the absence of spines as one of the distinctive marks of this species; two, however, are sometimes present on the fresher marginal cells, in sheltered situations.

[Very abundant on shells, &c., off the Isle of Man (north)].

6. *L. verrucosa*, Esper.

Devon, rare; near Polperro, on rock between tide-marks; on stone from 40 fathoms, Cornwall, a single specimen. "Coast of Cornwall, near low-water mark, and also in deep water" (C. W. Peach).

[Ilfracombe, between tide-marks.]

7. *L. violacea*, Johnston.

Not uncommon: on shell from the Brixham trawlers, forming a cream-coloured crust; Torbay, on shells.

8. *L. spinifera*, Johnston. Busk, Catalogue, pl. 76. figs. 2, 3.

Common on *Laminaria* stems and roots: Salcombe, &c.

The large interlacing roots of the Tangle are the home or hiding-place of a multitude of marine animals, and are generally rich in Zoophytes. The collector will always do well to "bag" as many of them as possible, and reserve them for quiet and close examination. The present species is very generally present, and I have seldom met with it in any other habitat.

[Isle of Man.]

9. *L. unicornis*, Johnston.

Very common on stones between tide-marks.

This is one of the most plentiful of the littoral species, often covering with its silvery-white crust very large spaces on the surface of rock or stone. I have never met with it except in the littoral region.

10. *L. ansata*, Johnston.

Rare: a few specimens only have occurred, on stones taken up from 40 and 30 fathoms depth off the Cornish coast. I have had the opportunity of examining the ovicell, which is not described by Johnston or Busk, and find that it differs widely from that of *L. unicornis*, yielding therefore another distinctive character. It is small, smooth, wanting the radiating grooves, and very intimately united to the cell above.

"On a slaty rock sent from Cornwall by C. W. Peach" (Johnston).

[On stone from deep water, off the coast of Antrim.]

11. *L. trispinosa*, Johnston.

Very common, on shell, stone, &c.: the 60-fathom *Pinnae* are largely covered with its yellow crust.

12. *L. coccinea*, Abildgaard.

Common: Torquay, between tide-marks; Start Bay, Salcombe Bay, &c. Sidmouth (*Mrs. Gatty*).

13. *L. linearis*, Hassall.

Very abundant and generally distributed: plentiful in 60 and 40 fathoms depth, Cornwall; Torbay, &c.

This is decidedly one of the commonest species. It is usually of a pretty rose-colour.

[Isle of Man.]

14. *L. ciliata*, Pallas.

Very common: ranges from the shore to very deep water.

15. *L. Gattyæ*, Landsborough.

"Sidmouth, on *Phyllophora rubens*" (*Mrs. Gatty*).

16. *L. Woodiana*, Busk, Crag Polyzoa, p. 42, pl. 7.
figs. 1 & 3.

On the under surface of a large stone taken up from 30 fathoms, south-west of Polperro.

A single specimen only has been met with.

I have already recorded the discovery of this *Lepralia* off the coast of Antrim, where it occurs sparingly on shells from deep water. It is one of the species described by Mr. Busk from the Coralline Crag, and had only been known in a fossil state previous to its occurrence off the Irish coast. It has since been found at Madeira.

The Cornish specimen is in very fine condition, and enables me to correct a portion of Mr. Busk's description, which is inaccurate from his only having had the opportunity of examining fossil or worn examples. Instead of a "very minute *avicularium* on each side of the orifice on the highest part of the cell," *L. Woodiana* is furnished with two long and slender *vibracula*, which cross one another above the aperture. These organs have entirely disappeared in the Irish as well as in the Crag specimens, and their position is marked by two small openings.

The species is nearly allied to *L. Hyndmanni*, and appears to be essentially a deep-water form.

The Cornish agrees with the Madeiran specimens in the absence of the intercellular punctures.

17. *L. vulgaris*, Moll, Microscopical Journ. (Zoophytology, pl. 18. fig. 3).

Syn. *L. alba*, Hincks, Mic. Journ. (Zoophytology, pl. 30. fig. 2).

Abundant on stone from 30 fathoms, south-west of Polperro.

In a paper published in the 'Proceedings of the Dublin University Zool. and Botan. Assoc.' vol. ii. pt. 1. p. 67, I have described a *Lepralia* under the name of *L. alba*. It was obtained by Mr. Hyndman, of Belfast, from deep water off the coast of Antrim. The Cornish stone which yielded the *L. Woodiana* has supplied me with abundant specimens of this form in the freshest condition; and I now find that I have fallen into the very error which I have just corrected in Mr. Busk's description of the preceding species, and have represented as avicularia what are in truth vibracular organs. But *Lepralia alba* with *vibracula* is plainly identical with the *L. vulgaris* of Moll—a common Mediterranean species, which has also been found at Madeira. My species must therefore be cancelled, and the *L. vulgaris* placed on our list in its stead. Thus is added another to the number of forms common to the Mediterranean and the British seas.

[Coast of Antrim, on shell.]

18. *L. variolosa*, Johnston.

Very common on shells and stones; abundant on *Pinnæ* from 60 fathoms: Brixham trawl-refuse; Start Bay, &c.

19. *L. nitida*, Fabricius.

Common, especially in the littoral zone: on stones between tide-marks: also on *Eschara foliacea* from 30 fathoms, &c. A favourite habitat is the surface of a fine Sponge which is found on rocks at Torquay, near low-water mark.

In the young state, the ribs present the appearance of suberect spines surrounding the margin of the cell; and the species bears the closest resemblance, as noted by Dr. Johnston, to one of the spiniferous *Membraniporæ*.

20. *L. Peachii*, Johnston.

Extremely abundant, from moderate depths to 60 fathoms.

21. *L. ventricosa*, Hassall.

Not uncommon: on stones from deep water, Cornwall, &c. Start Point (*J. S. Bowerbank*).

22. *L. innominata*, Couch.

Common: Torbay, abundant on shell; off Polperro, on stone from 40 & 30 fathoms depth, &c. Start Point (*J. S. Bowerbank*).

A beautiful variety is not uncommon from deep water, in which the central ridge is wanting, and along the furrows are set rows of punctures, which run continuously across the front of the cell. The texture is very delicate. This variety closely resembles the *L. radiata* of Moll. The chief difference is in the form of the avicularium, which in the latter species, as figured by Busk, *Mic. Journ. (Zoophytol. pl. 20. figs. 4, 5)*, is of very great length, and blunt at the extremity.

[Isle of Man (north)].

23. *L. punctata*, Hassall.

Very common: on stones between tide-marks, and in moderate depths (Salcombe Bay); also on *Pecten* from the Brixham trawl-boats.

24. *L. Malusii*, Audouin.

Very common, on shells and stones; Torbay; Start Bay; abundant in deep water (60 and 30 fathoms) off the Cornish coast, &c.

25. *L. figularis*, Johnston.

On stones from deep water (40 and 30 fathoms) south-west of Polperro.

26. *L. pertusa*, Esper.

Very common, forming orange patches on shells and stones: Torbay; 40 fathoms, Cornish coast, &c.

27. *L. Pallasiana*, Moll.

Abundant between tide-marks, and in very moderate depths (Salcombe Bay); the predominant littoral species on the western coasts. The variety *armata*, figured by Mr. Busk in the '*Microp. Journal*' (*Zoophytology*, pl. 11. figs. 1, 2), has occurred at Torquay. The avicularium is only present on a few of the cells.

[Ramsay, Isle of Man; common.]

28. *L. labrosa*, Busk.

Not common: in a valve of *Cardium* from the Brixham trawl-boats; on *Pecten*, Start Bay.

[Isle of Man.]

29. *L. simplex*, Johnston.

I have met with one or two specimens in a shell from the trawl-boats.

Amongst deep-water dredgings from the coast of Antrim it is extremely abundant; and Mr. Hyndman has also obtained it off the opposite coast of Cantire. But, I believe, no other habitat has hitherto been recorded.

30. *L. Ceciliæ*, Audouin.

On a stone from deep water, coast of Cornwall; also on *Eschara cervicornis*.

This is an addition to our English list.

L. Ceciliæ had only been found till now in Jersey.

31. *L. adpressa*, Busk.

Torbay, on shells.

This is a very interesting addition to our fauna. The species was first obtained by Mr. Darwin at Chiloe, in 96 fathoms; and it has since been found abundantly on shells from Mazatlan. It will probably prove to be not uncommon on the Devonshire coast. I have already met with several specimens.

The Torbay examples agree with the Mazatlan form in the absence of the radiating grooves on the cells. The surface is granular. A blunt process is commonly present at each extremity of the lower margin of the aperture. The ovicells are small, somewhat depressed, closely adnate to the cell above, smooth in front, and strongly grooved round the border.

32. *L. bella*, Busk.

On shell from the Brixham trawlers; on a stone from 40 fathoms, south-west of Polperro.

33. *L. granifera*, Johnston.

Common, on stones between tide-marks and from deep water: Torquay, Salcombe (on red weed), &c. Sidmouth (*Mrs. Gatty*); coast of Cornwall (*Peach*).

Var. *cornuta*. On shell, Salcombe Bay.

34. *L. hyalina*, Linnæus.

Very common, on weed, stone, &c.

Polypide with twelve tentacles.

35. *L. fissa*, Busk.

On stones from deep water (40 and 30 fathoms), coast of Cornwall. "Coast of Devon (*Miss Cutler*); Exmouth (*Barlee*)."

36. *L. bispinosa*, Johnston.

Common, on stones and shells: Torbay (abundant), Salcombe Bay; Cornwall, from 30 fathoms.

Neither Dr. Johnston's description nor Mr. Busk's in the British Museum Catalogue does full justice to this species. It may be thus characterized:—

Cells ovate, elongate, minutely granular; orifice subquadrangular, two long spines on the upper margin, a strongly project-

ing mucro in the centre of the lower lip, from within the base of which a process springs, which bends to one side, and forms with the inferior margin a kind of loop; a denticle on each side of the mucro; on the front of the cell a raised avicularium with pointed mandible.

The species is liable to considerable variation. At times the mucro is much developed, and the surface of the polyzoarium bristles with the long spear-like processes. In other cases it is a mere tooth on the lower margin. The avicularia, which are generally very numerous, are occasionally wanting. *L. bispinosa* is very abundant in Torbay, and, when fresh, is of a delicate lilac colour.

37. *L. affinis*, n. sp. Pl. XII. fig. 2.

Cells broad-ovate, minutely punctured, separated by lines; orifice orbicular, with a raised peristome, produced below; three denticles within the inferior margin, of which the central one is the largest; on the lower edge an avicularium, placed transversely, with pointed mandible.

On shell from Start Bay.

This species bears a considerable resemblance in some respects to *L. Landsborovii*. The points of distinction are the shape of the cell, which is not elongate as in the normal *Landsborovii*, the smallness of the punctures, and their more irregular distribution, and especially the form and position of the avicularium.

38. *L. ochracea*, n. sp. Pl. XII. fig. 3.

Cells rhomboidal, separated by raised lines; surface reticulate, sometimes studded with prominent white granules; orifice orbicular, with a sinus on the inferior margin, a little below which is an oval avicularium, set somewhat obliquely, mandible pointing downwards,—sometimes replaced by a very large spatulate avicularium, extending to the bottom of the cell; ovicell ——?

Colour of polyzoarium dull yellow.

On a stone from 30 fathoms, coast of Cornwall.

The oval avicularia vary considerably in size. In many of the cells they are replaced by the gigantic spatulate avicularia, whilst others are altogether destitute of these organs.

I have an Australian species, which is probably identical with this form.

39. *L. hastata*, n. sp. Pl. XII. figs. 4, 4a.

Cells oblong, disposed in radiating rows, and separated by narrow lines; surface smooth and shining, with rather large

punctures; orifice orbicular, with a slight contraction on each side below, four or five spines round the upper margin; immediately below the centre of the lower margin a mamillary process prolonged above into a spike, and on one side of it an avicularium with pointed mandible directed upwards; ovicell — ?

In a valve of *Cardium*, from Start Bay.

40. *L. armata*, n. sp. Pl. XII. fig. 5.

Cells ovate, somewhat ventricose, granular; orifice orbicular, with a loop below, enclosed by a raised border; four very long tapering spines, two of which are placed on the upper margin and two on the sides, the latter projecting in front of the ovicell; on one (or sometimes on each) side of the orifice a raised process, bearing on the summit a small round avicularium; ovicell wide, shallow, flat in front, smooth, or with a few raised lines. Large mounted avicularia, with elongate mandibles, scattered here and there amongst the cells.

On the under side of a stone, from 30 fathoms, south-west of Polperro, forming large brownish or grey patches.

[To be continued.]

XXIII.—*On the Fibrin and Latex of Vegetables, and on the Coagulation of Fibrin without Evolution of Ammonia*. By GEORGE GULLIVER, F.R.S., Professor of Comparative Anatomy and Physiology to the Royal College of Surgeons.

THE wide diffusion of fibrin through the animal kingdom is well known. But there is little notice, much less description, of a spontaneously coagulable fluid in plants. For instance, in the last edition of our most comprehensive work on human physiology, Dr. Carpenter says there is nothing in the juices of the plant analogous to the fibrin of the blood, and, further, that “the fact of the entire absence of any substance at all resembling fibrin in the vegetable juices, and the corresponding deficiency of the fibro-gelatinous tissues in their fabric,” may be added in confirmation of an ingenious view he had advanced: this refers to limiting the value of fibrin, as regards the ordinary nutritive processes, to the maintenance of the gelatinous tissues.

It is scarcely probable that the presence of fibrin in the vegetable juices can be unknown; for the fact is that fibrin is by no means uncommon in plants—that is to say, a fluid substance which will coagulate spontaneously at the temperature of the atmosphere, and then present an intimate structure of fibrils,